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Ex parte Breuer (BdPatApp&Int) 1 USPQ2d 1906

## Ex parte Breuer

**U.S. Patent and Trademark Office, Board of Patent Appeals  
and Interferences  
1 USPQ2d 1906**

Mailed June 30, 1986

### Headnotes

#### PATENTS

##### 1. Patentability/Validity -- Adequacy of disclosure [Enablement] (§ 115.11)

Patent examiner incorrectly refused claims for compound under 35 USC 112, since claims set out and circumscribe invention with reasonable degree of precision and particularity, and since scope of protection sought is supported and justified by specification disclosure, in that term "substituted alkyl" is precise and definite, such that person having ordinary skill is enabled to practice invention, in that recited alkyl groups are not unlimited in size, and in that person of ordinary skill would not view terms "heterocycle" and "substitute alkyl" as being defined in terms of themselves.

#### Case History and Disposition:

Application for patent of Herman Breuer and Theodor Denzel, Serial No. 444,771, filed November 26, 1982, which is continuation-in-part of Serial No. 336,537, filed January 4, 1982, which is continuation-in-part of Serial No. 368,609, filed April 15 1982. From decision refusing to allow claims 2-5, 9, 15-17, 26 and 27, applicant appeals. Reversed.

**Attorneys:**

Lawrence S. Levinson, Princeton, N.J., and Donald J. Barrack, for applicant.

Mark L. Berch, primary examiner, for PTO.

**Judge:**

Before Winters, Goolkasian, and Meros, Examiners-in-Chief.

**Opinion Text**

**Opinion By:**

Winters, Examiner-in-Chief.

This is an appeal from the examiner's refusal to allow claims 2 through 5, 9, 15 through 17, 26 and 27.

A copy of claim 26, which is illustrative of the claimed invention, is attached as an appendix to this decision.

No prior art is relied on by the examiner, his sole basis for rejecting the appealed claims being that they are in derogation of the first and second paragraphs of 35 USC 112. It is the examiner's position that the claims run afoul of 35 USC 112 because: (1) in the claim recitation "substituted alkyl", the *degree* of substitution is not given; (2) in "alkylthio", "alkylsulfinyl", and "alkylsulfonyl", each recitation, the alkyl group is unlimited in size; and (3) the terms "heterocycle" and "substituted alkyl" in the claims are defined in terms of themselves. Respecting these three points, the examiner sets forth his position in full in the Answer, pages 2 through 4 therein.

**OPINION**

In our view, appellants' claims set out and circumscribe the invention with a reasonable degree of precision and particularity and, moreover, the scope of protection sought is supported and justified by the specification disclosure. *In re Moore* , 439 F.2d 1232, 169 USPQ 236

(CCPA 1971). Accordingly, we shall not sustain these rejections.

[1] Respecting the term "substituted alkyl", that term is precise and definite. As clearly set forth in the claims, "alkyl" refers to groups having 1 to 10 carbon atoms which may be substituted with one or more specified substituent groups. The issue is not whether the examiner can conjure up a substituent group, C<sub>10</sub>(NH<sub>2</sub>)<sub>21</sub>, which does not exist. A person having ordinary skill in the art would readily appreciate that compounds containing such substituent group do not exist. As stated in a similar context in *In re Angstadt*, 537 F.2d 498, 190 USPQ 214, 219 (CCPA 1976) "nobody will use them [inoperative embodiments] and the claims do not cover them". In view of appellants' exhaustive disclosure describing how to make and use the claimed compounds, including 50 working examples, we are persuaded that a person having ordinary skill is enabled to practice the claimed invention without undue experimentation. The skilled artisan could and would readily ascertain an

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embodiment or embodiments which cannot be made.

Furthermore, we find that the alkyl group in "alkylthio", "alkysulfinyl", and "alkylsulfonyl" is limited in size. In our view, the 1 to 10 carbon atom limitation expressly set forth in the claims applies not only to "alkyl" standing alone but also to the three groups specified above. As stated by appellants, "any group which contains an alkyl group contains an alkyl group of 1 to 10 carbon atoms". See Appellants' Brief, page 9.

The examiner points out that appellants' definition of "substituted alkyl" refers, *inter alia*, to alkyl substituted with "heterocycleoxy" and moreover, the definition of "heterocycle" refers to specific heterocycle groups which may be substituted with "substituted alkyl". According to the examiner, the definition comes full circle and raises the specter that the claims embrace compounds containing a never-ending substituent group. We find that this claim construction, though literal, is not reasonable and is not how a person having ordinary skill would view the claims. The only reasonable construction precludes never-ending substituent groups. For example, when alkyl is substituted with "heterocycleoxy", the skilled artisan would understand that "heterocycle", in this instance, is not substituted with "substituted alkyl". In our view, the examiner's claim construction, though possible, is not reasonable and is incorrect.

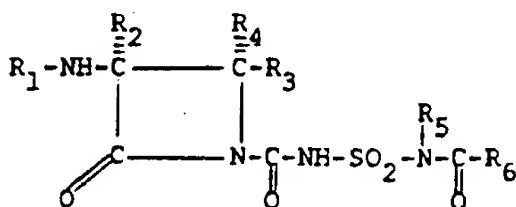
The examiner's decision refusing to allow claims 2 through 5, 9, through 17, 26 and 27 is reversed.

*REVERSED*.

## Appendix

## APPENDIX

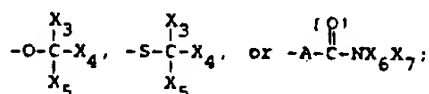
26. A compound having the formula



or a pharmaceutically acceptable salt thereof, wherein R<sub>1</sub> is an acyl group derived from a carboxylic acid;

R<sub>2</sub> is hydrogen or methoxy;

R<sub>3</sub> and R<sub>4</sub> are the same or different and each is hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, or a 5, 6 or 7-membered heterocycle or one of R<sub>3</sub> and R<sub>4</sub> is hydrogen and the other is azido, halomethyl, dihalomethyl, trihalomethyl, alkoxycarbonyl, 2-phenylethenyl, 2-phenyl-ethynyl, carboxyl, -CH<sub>2</sub>X<sub>1</sub>, -S-X<sub>2</sub>, -O-X<sub>2</sub>,



X<sub>1</sub> is azido, amino, hydroxy, alkanoylamino, alkyl-sulfonyloxy, arylsulfonyloxy, aryl, cyano, -S-X<sub>2</sub> or -O-X<sub>2</sub>;

X<sub>2</sub> is alkyl, substituted alkyl, aryl, arylalkyl, alkanoyl, substituted alkanoyl, arylcarbonyl or heteroaryl-carbonyl;

One of X<sub>3</sub> and X<sub>4</sub> is hydrogen and the other is hydrogen or alkyl, or X<sub>3</sub> and X<sub>4</sub> when taken together with the carbon atom to which they are attached form a cycloalkyl group;

X<sub>5</sub> is formyl, alkanoyl, arylcarbonyl, arylalkyl-carbonyl, carboxyl, alkoxycarbonyl, aminocarbonyl, (substituted amino) carbonyl, or cyano;

A is -CH=CH-, -CH<sub>2</sub>-CH=CH-, -(CH<sub>2</sub>)<sub>m</sub>-, -(CH<sub>2</sub>)<sub>m'</sub>-O-, -(CH<sub>2</sub>)<sub>m'</sub>-NH-, -(CH<sub>2</sub>)<sub>m'</sub>-S-CH<sub>2</sub>-, or -(CH<sub>2</sub>)<sub>m'</sub>-O-CH<sub>2</sub>-;

m is 0, 1, 2 or 3;

m' is 1 or 2;

X<sub>6</sub> and X<sub>7</sub> are the same or different and each is hydrogen or alkyl, or aryl, or X<sub>6</sub> is hydrogen

and X<sub>7</sub> is amino, substituted amino, acylamino or alkoxy;

R<sub>5</sub> is hydrogen, alkyl or aryl;

R<sub>6</sub> is hydrogen, alkyl, aryl, a 5, 6 or 7-membered heterocycle, -NR<sub>7</sub>R<sub>8</sub>, or -(CH<sub>2</sub>)<sub>n</sub>-X wherein n is 1, 2, 3 or 4 and X is halogen, aryl, alkoxy, aryloxy or -NR<sub>9</sub>R<sub>10</sub>;

R<sub>7</sub> and R<sub>8</sub> are the same or different and each is hydrogen, alkyl or R<sub>7</sub> is hydrogen and R<sub>8</sub> is a 5, 6 or 7-membered heterocycle or -(CH<sub>2</sub>)<sub>n</sub>-Y wherein n is 1, 2, 3 or 4 and Y is alkoxy, amino, alkylthio or halogen; and

R<sub>9</sub> and R<sub>10</sub> are the same or different and each is hydrogen or alkyl, or R<sub>9</sub> is hydrogen and R<sub>10</sub> is a 5, 6 or 7-membered heterocycle;

wherein the terms "alkyl" and "alkoxy" refer to groups having 1 to 10 carbon atoms;

the term "cycloalkyl" refers to groups having 3, 4, 5, 6 or 7 carbon atoms;

the terms "alkanoyl", "alkenyl", and "alkynyl" refer to groups having 2 to 10 carbon atoms;

the term "aryl" refers to a phenyl or phenyl substituted with 1, 2 or 3 amino, halogen, hydroxyl, trifluoromethyl, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms or carboxyl groups;

the term "substituted alkyl" refers to alkyl groups substituted with one, or more, azido, amino, halogen, hydroxy, carboxy, cyano, alkoxycarbonyl, aminocarbonyl, alkanoy

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loxy, alkoxy, aryloxy, a 5, 6 or 7-membered heterocycleoxy, mercapto, alkylthio, arylthio, alkyl-sulfinyl, or alkylsulfonyl groups;

the term "substituted alkanoyl" refers to groups having the formula (substituted alkyl)



the term "substituted amino" refers to a group having the formula -NY<sub>1</sub>Y<sub>2</sub> wherein Y<sub>1</sub> is hydrogen, alkyl, aryl, or arylalkyl, and Y<sub>2</sub> is alkyl, aryl, arylalkyl, hydroxy, cyano, alkoxy, phenylalkoxy, or amino;

the term "heteroaryl" refers to pyridinyl, furanyl, pyrrolyl, thienyl, 1,2,3-triazolyl, 1,2,4-triazolyl, imidazolyl, thiazolyl, thiadiazolyl, pyrimidinyl, oxazolyl, triazinyl, tetrazolyl or one of the above groups substituted with one, or more, oxo, halogen, hydroxy, nitro, amino, cyano, trifluoromethyl, alkyl or 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms,

alkyl-sulfonyl, aryl, 2-furylmethyleneimino, phenylmethylene-imino or substituted alkyl, wherein the alkyl group has 1 to 4 carbon atoms, groups; and

the term "a 5, 6, or 7-membered heterocycle" refers to pyridinyl, furanyl, pyrrolyl, thienyl, 1,2,3-triazolyl, 1,2,4-triazolyl, imidazolyl, thiazolyl, thiadiazolyl, pyrimidinyl, oxazolyl, triazinyl, tetrazolyl, piperidinyl, piperazinyl, imidazolidinyl, oxazolidinyl, pyrrolidinyl, tetrahydropyrimidinyl, dihydrothiazolyl, or one of the above groups substituted with one or more oxo, halogen, hydroxy, nitro, amino, cyano, trifluoromethyl, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, alkyl-sulfonyl, aryl, 2-furylmethyleneimino, phenylmethyleneimino, or substituted alkyl, wherein the alkyl group has 1 to 4 carbon atoms, groups.

**- End of Case -**